DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
SUBDIVISION BUREAU

TED SCHWINDEN, GOVERNOR
STATE OF MONTANA
(406) 449-3946
HELENA, MONTANA 59620

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Terrace View
Subdivision

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Alfred R. Kron, 228 Glenwood Ave, Hillcrest Addn, Glendive, MT 59330
Frederic Dion, 619 N. River Drive, Glendive, MT 59330
Wheeler and Associates Attn: Terry Meldahl, Box 41, Sideny, MT 59270
K.D. Fenner, Box 555, Baker, MT 59313
Water Quality Bureau, DHES, Box 20296, Billings, MT 59101
Superintendent of Schools, Courthouse, Glendive, MT 59330
Fran Mertes, 611 N. Kendrick, Glendive, MT 59330

PLEASE RETURN

RE: Terrace View Subdivision
Dawson County

Ladies and Gentlemen:

The enclosed preliminary environmental review has been prepared for Terrace View Subdivision in Dawson County, and is submitted for your consideration. Questions and comments will be accepted until June 22, 1981. One extension of time not to exceed seven days will be granted upon request if there is sufficient reason for the request. All comments should be sent to the undersigned.

Sincerely,

Edward W Casne

Edward W. Casne, P.E.
Chief

jg
Enclosures

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DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
Cogswell Building, Helena, Montana 59601
(406)449-3946

PRELIMINARY ENVIRONMENTAL REVIEW

Division/Bureau Environmental Sciences Division/Subdivision Bureau

Project or Application Terrace View Subdivision

Description of Project This subdivision is proposed for a site approximately 1 mile southwest of West Glendive on old U.S. Highway No. 10 in Section 4, T15N, R55E, PMM This subdivision has received Planned Unit Development (PUD) status from the Dawson County Commissioners. The site consists of approximately 165 acres with an approved density of 2 dwelling units per acre or a total of 330 dwelling units. These units would consist of single family, duplex, triplex, fourplex, and restricted commercial development. The remaining area would consist of open space, parks, playgrounds and utility siting locations. Phase I is to consist of 10 single family homes, 49 mobile homes, 4 fourplex units, and 10 patio condominium units for a total of 85 dwelling units. Both central water supply and sewage disposal will be provided to all of the lots. Initial sewage disposal will consist of a large community subsurface drainfield.

POTENTIAL IMPACT ON PHYSICAL ENVIRONMENT

	Major	Moderate	Minor	None	Unknown	Comments on Attached Pages
1. Terrestrial & aquatic life and habitats			XX			*
2. Water quality, quantity and distribution		XX				*
3. Geology & soil quality, stability and moisture			XX			*
4. Vegetation cover, quantity and quality			XX			*
5. Aesthetics			XX			*
6. Air quality			XX			*
7. Unique, endangered, fragile, or limited environmental resources				XX		
8. Demands on environmental resources of land, water, air & energy		XX				*
9. Historical and archaeological sites			XX			*

POTENTIAL IMPACTS ON HUMAN ENVIRONMENT

	Major	Moderate	Minor	None	Unknown	Comments on Attached Pages
1. Social structures and mores				XX		
2. Cultural uniqueness and diversity				XX		
3. Local and state tax base & tax revenue	X ←→	X				*
4. Agricultural or industrial production		XX				*
5. Human health				XX		
6. Quantity and distribution of community and personal income			XX			*
7. Access to and quality of recreational and wilderness activities			XX			*
8. Quantity and distribution of employment				XX		
9. Distribution and density of population and housing		XX				*
10. Demands for government services	X ←→	X				*
11. Industrial & commercial activity			XX			*
12. Demands for energy		X				*
13. Locally adopted environmental plans & goals			XX			*
14. Transportation networks & traffic flows			XX			*

Other groups or agencies contacted or which may have overlapping jurisdiction Water Quality Bureau, Food & Consumer Safety Bureau, Dept of Health and Environmental Sciences, Dawson County Planning Board, Dawson County Commissioners; Dawson County Health Department

Individuals or groups contributing to this PER. Wheeler and Assoc; Montana Dept of Fish and Game, Dept of Highways, Dept of Community Affairs, Historical Society; Glendive Community Hospital; Dawson County Schools; Dawson County Sheriff; Dawson County Planning Board and Commissioners

Recommendation concerning preparation of EIS Recommend against preparation of an Environmental Impact Statement

PER Prepared by: James C. McCauley

Date: May 18, 1981

DHES/ESD-2

POTENTIAL IMPACTS ON THE PHYSICAL ENVIRONMENT

1. Terrestrial and Aquatic Life and Habitats

The area of the proposed subdivision is primarily an agricultural tract with 76 irrigated acres of alfalfa or pasture and 90 acres of natural rangeland. It is bounded on the southeast by the Yellowstone River and Sevenmile Creek to the northeast. Also a small stream forms a portion of the south boundary at the Sterhan farm. It is assumed that various aquatic life exist within the Yellowstone River and to a lesser extent Sevenmile Creek. An on-site inspection of the proposed site on March 19, 1981 revealed that in actuality, a secondary stream channel of the Yellowstone River borders the subdivision. Extremely low flow conditions were noted in this channel.

As noted in the Environmental Assessment prepared by K.D. Fenner of Wheeler and Associates, the intent of this development will be to preserve much of the natural vegetation on the site. Major wildlife habitat areas are to be protected as open space or parkland. This assessment described vegetation which would afford excellent cover and browse for white-tailed deer and mule deer. It also mentions excellent habitat for ring-necked pheasant, sharp-tailed grouse and gray partridge along with migrating flocks of waterfowl.

Mr. James A. Posewitz, Administrator of the Ecological Services Division of the Department of Fish, Wildlife & Parks commented positively on this development. He states that as a result of review by their regional staff, the Department of Fish, Wildlife and Parks has determined that there are no severe impacts on fish and wildlife resources associated with this development.

2. Water Quality, Quantity and Distribution

According to a water system design submitted to this Department by Terry Meldahl of Wheeler and Associates, a central water system will be constructed to supply domestic needs of all of the proposed housing units. The total PUD is expected to require 115,500 gallons per day or 80 gallons per month as an average. Peak hourly demand would be 720 gallons per minute in addition to a 750 gallons per minute fire flow or a potential 1470 gallons per minute total.

A test well has been drilled on-site to a depth of 410 feet. Preliminary testing indicates a flow rate of 40 gallons per minute can be obtained from the well. At least two permanent wells will be constructed and supplemented by storage to meet peak water demands. It is anticipated that a 125,200 gallon above-ground storage reservoir will provide adequate storage capacity for the total development. Booster pumps will provide adequate pressure throughout the system. Due to the subdivision's proximity to the Yellowstone River, negative impact on the existing aquifer is not probable.

Phase I construction of 85 units will create an average domestic water demand of approximately 20.7 gallons per minute and a peak demand of 186 gallons per minute. This would be in addition to a 750 gallons per minute fire flow. Plans call for the construction of two wells supplemented by 94,200 gallons of storage.

Preliminary chemical analysis of the test well indicates an acceptable potable water supply. The sodium content of the water may cause problems for individuals on low sodium diets, however, those levels obtained are not in violation of parameters listed in the EPA Interim Primary Drinking Water Standards.

The operation and maintenance of the water supply system will be accomplished by the Terrace View Homeowner's Association. A certified operator will be employed to operate and perform routine maintenance of the system. Final plans and specifications for construction of the water supply must receive approval of the Water Quality Bureau of the Department of Health and Environmental Sciences (DHES).

As previously noted, the proposed subdivision is bound on two sides by flowing streams. There is also a small natural drainage swale at approximately the midpoint. A 30-foot irrigation lateral borders the site along old U.S. Highway No. 10. Therefore, increased storm drainage due to development must be carefully considered to prevent sedimentation and pollution of nearby waterways.

A storm drainage analysis has been submitted to the DHES for Phase I and these plans have been accepted. The soils in this subdivision exhibit slow to moderately slow runoff characteristics. For the most part, slopes are gentle within the 0-3 percent range. Peak runoff computations for the natural state were compared with runoff after projected development. Storm drainage structures were then sized to handle this excess.

Peak stormwater flows will be directed into the natural drainage course at the midpoint of the plat. This will be accomplished through the use of curb and gutter streets, borrow ditches, culverts and a vegetated berm. It is not anticipated to provide any means of sedimentation or treatment for this 1st phase. The vegetation in the existing drainage swale will not be disturbed and should therefore provide adequate natural treatment for phase I. Stormwater runoff will be assessed as additional phases are proposed and if necessary, detention basins or other means of treatment can be provided.

Measures will be taken during construction to prevent erosion by re-seeding drainage channels with native grasses as soon as possible. It would be wise to control the use of fertilizers, pesticides and insecticides so as not to provide detrimental effects on groundwater and streams.

The effect of subsurface sewage disposal within Terrace View should not have detrimental effects on groundwater or surface water supplies. Soil characteristics and hydrology of the area have been studied by Fran Mertes, P.E., in order to determine suitable areas for building sites and sewage disposal. The results of his study pinpointed an area within the irrigated hay field for subsurface sewage disposal. A total of 20 test pits 10 feet in depth were excavated on the site and a portion of these periodically monitored for the past year and a half. High groundwater was encountered in some areas and associated with a sandstone layer at varying depths beneath the ground surface.

The actual site for proposed construction of the central subsurface sewage disposal system has been monitored since October 1980 through the placement of perforated plastic pipe to a depth of 8 feet. As of this date, no evidence of high groundwater has been detected. The Phase I disposal system will consist of a

25,500 gallon septic tank followed by a dual lift station which will periodically dose the 15,100 lineal foot central drainfield.

It is proposed that future phases will utilize a similar sewage disposal method at a location adjacent to the Phase I system. The ultimate approval of continued use of this type of sewage disposal hinges on monitoring and evaluation of the initially proposed system. Detailed plans and specifications of sewage disposal systems will be reviewed by this Department.

Operation and maintenance of the proposed sewage disposal systems will be handled by the Terrace View Homeowner's Associated. A certified operator will be in responsible charge of the system.

According to data generated by the Federal Insurance Administration and the Department of Housing and Urban Development, the only areas subject to flooding by the 100-year event lie adjacent to the Yellowstone River and Sevenmile Creek. Proposed usage of land within the floodplain consists of park and open space. As future phases of development in the lower portions of the site are proposed, further engineering study of the area may be required to establish exact floodplain boundaries.

3. Geology and Soil Quality, Stability and Moisture

Geology and soils of the area have been addressed in the Environmental Assessment prepared by Wheeler and Associates. They state that geology is typical of sedimentary plains in Eastern Montana. The exposed Fort Union Formation consists of sandstones, shales and coal. Four different soil associations are present on the site and could generally be described as deep, well-drained, light-colored fine sandy loams, loams, silt loams and silty clay loams. On-site test borings substantiate this data in that generally, an upmost layer of topsoil was underlain by sandy clay, followed by sands and gravel. A sandstone layer was observed in a few of the test pits.

Limitations for buildings, roadways, sewage disposal, etc. vary from slight to severe. Factors such as high shrink-swell potential, frost-action potential, flooding, high groundwater and permeability will affect various portions of the acreage. Site specific investigations have been made to determine what portions of the property are best suited to proposed usages. Therefore, problems should not be encountered as long as caution is exercised with respect to footings, foundation, and graded slopes. Further study of the site specified for subsurface sewage disposal is being conducted at this time.

4. Vegetation Cover, Quantity and Quality

Approximately 76 acres of the site is presently irrigated alfalfa or irrigated pastureland consisting of orchard, broomgrass and bluegrass. The remainder of the tract, approximately 90 acres, is natural vegetation varying from thin range site to stream and riverside vegetation. Brushy rangeland, stands of cottonwood, willow, green ash, rosebush and silver sagebrush are present. Most of the natural vegetation will remain intact, especially along the Yellowstone River and Sevenmile Creek.

5. Aesthetics

Restrictive covenants have been developed to control the appearance of structures and their subsequent maintenance. The homeowner's association will maintain and operate the common areas. Plans include the development of bicycle paths, footpaths, parks and natural areas.

6. Air Quality

There are no known air pollution problems in the vicinity of the proposed development. Initially, road surfaces are to be primarily gravel with the possibility of paving in the immediate area of the housing clusters. This factor could bring about a fugitive dust problem depending on the amount of road, the average speed of vehicles, and the amount of traffic.

8. Demands on Environmental Resources of Land, Water, Air and Energy

Some energy will be expended in commuting to jobs and shopping centers. However, this should not be excessive in comparison to individuals residing in Glendive or West Glendive.

If approved plans for water supply, sewage disposal, storm runoff control and solid waste disposal are not followed, water quality may be adversely affected. There will be a quantitative demand on the existing water aquifer for domestic and irrigation purposes. In turn, aquifers nearer the surface will be replenished through disposal of sewage effluent and lawn irrigation. Dust from unpaved roads and fireplace smoke generated by residents could damage local air quality.

The incorporation of solar design factors into layout and orientation of structures is a very positive influence on energy consumption. The Sol-Air Analysis as presented in the Environmental Assessment prepared by Kevin Fenner should be quite beneficial to initial planning. If actual passive and/or active solar design for heating and cooling is followed through to the construction phase, substantial energy savings should be realized.

See additional comments under items no. 2 and 6 of Potential Impacts on the Physical Environment.

POTENTIAL IMPACTS ON HUMAN ENVIRONMENT

3. Local and State Tax Base and Tax Revenue

An increase in taxes will result from reclassification from agricultural to residential usage. The following excerpt was taken from the Environmental Assessment prepared by Wheeler and Associates:

> "Taxes on agricultural land are based on the production value. The value of the 76 acres of irrigated land based on production is $2,390. The production value of the 91 acres of grazing land is $237. The total production value of the land is $2,627. To determine the taxes on the property you take 30 percent of the production value and multiply that result by the mill levy. To determine the taxes on residential land and/or improvements you multiply the market value by 8.55 percent and multiply that result by the mill levy. Currently the appraiser's office figures improvements are from 50-55 percent of true market value while land is approximately 40 percent of true market value."

The overall increase in taxes will not be felt until substantial development has occurred. Therefore, residential developments do not often generate enough revenue to support the services they require.

4. Agricultural or Industrial Production

Of the 76 acres of irrigated land present, there is no Class I land and only 20% of the tract is Class II. As mentioned previously, the remainder of the site is lower quality grazing land and riparian vegetation. Since the best agricultural land is not presently slated for development, the overall effect on agriculture should be minimal. Some disturbance of the pasture will occur during installation of the sewage disposal system and further irrigation will be limited near the disposal site.

See comments under item 4 of Potential Impacts on the Physical Environment.

6. Quantity and Distribution of Community and Personal Income

This is a difficult impact to assess but it is assumed that no negative factors would be encountered. Steady growth due to energy and mineral resources is anticipated for Dawson County. Both community and personal income should increase dramatically in the future. Any impact upon urban tax base or the central business district should be positive as Glendive has not yet reached a position where decay of the central city would occur.

7. Access to and Quality of Recreational and Wilderness Activities

There is no direct access to public lands through this subdivision. As discussed in the Environmental Assessment, bicycle paths, footpaths, parks, natural areas and open spaces will be integrated into the overall plan of development. These areas will be controlled by the Homeowner's Association.

9. Distribution and Density of Population and Housing

This subdivision as currently proposed, will consist of 330 units consisting of single-family, duplex, triplex, fourplex and restricted commercial dwellings. Phase I will consist of 10 single-family homes, 49 mobile homes, 4 fourplex units and 10 patio condominium units. An increase in housing density would result from approval of this subdivision. Due to its nearness to present development and anticipated growth of the general area, it would appear to coincide with expected land use.

10. Demands for Government Services

The localized increase in population brought about by the development of any new subdivision will place additional burdens on local services. The increased tax base should somewhat offset the cost of these services.

Police protection for Terrace View would be provided by the Dawson County Sheriff's Office. Mr. Hodous had the following comment in regard to the subdivision:

> "The law enforcement protection available for the proposed Terrace View Subdivision in West Glendive would be the same as the protection for other residential areas in West Glendive. This coverage would be routine patrol of the area during the day and night hours and response and investigation of complaints and emergency type calls or reports."

The site of the proposed subdivision is within the West Glendive Fire District and ambulance service is available to the Glendive Community Hospital less than four miles away.

The subdivision will be served by Jefferson School and Dawson County High School. The Dawson County Superintendent of Schools, Jean Grow, did not express a negative viewpoint in response to Kevin Fenner's request for information. It was stated that the subdivsion could be served by an established bus route on Old Highway No. 10.

It is this author's opinion that a definite impact upon public schools will occur as with any development of this magnitude. Additional transportation, physical plant and staff costs are to be expected. The seriousness of this impact is almost totally dependent upon the rate of growth and the community's ability to keep pace.

11. Industrial and Commercial Activity

The portion of the subdivision immediately adjacent to Old Route No. 10 is slated for restricted commercial development. Details of plans for this area are not complete at this time.

See comments under item no. 6 in Potential Impacts on Human Environment.

12. Demands for Energy

Electrical power and gas will be provided by Montana Dakota Utilities. All utilities are to be located underground. Telephone service may be provided by Mountain Bell.

The concept of solar energy use employed in design of the subdivision should help to mitigate energy consumption.

See additional comments under item no. 8 in Potential Impact on Physical Environment.

13. Locally Adopted Environmental Plans and Goals

The basis of need for this type of subdivision was discussed by the Dawson County Planning Board and their findings were inconclusive. However, the present development of oil, gas and coal in the general geographic area indicates a tremendous growth potential. A comprehensive plan for the Glendive area was prepared in 1970, but this plan was never adopted. Public response to hearings held by the Dawson County Planning Board were all positive. The Dawson County Commissioners granted a conditional approval to the preliminary plat on January 28, 1981. The plat was subject to the following conditions:

1. All sewage disposal, water supply and solid waste disposal systems and storm drainage plan must meet the regulations and minimum standards of the Montana Department of Health and Environmental Sciences and be approved by that department. These systems shall be subject to approval by the Dawson County Commissioners.

2. A report containing the data on the groundwater monitoring on the subdivision site shall be sumbitted to the Dawson County Planning office.

3. The Covenants and the Property-Owners Association By-laws shall be reviewed and approved by the Dawson County Attorney before Final Plat Approval is granted.

4. Road specifications for the roads in the subdivision to be dedicated to the county shall be reviewed and approved by the Dawson County Commissioners.

5. The developers shall file with the final plat a plat of the subdivision that delineates the areas with possible high water table problems. These high water table areas are associated with the subsurface sandstone layer that underlies portions of the subdivision site. The developers shall also include in the deeds for those lots within that area delineated as having a possible high water table problem, reference to this plat and to the possibility of a high water table problem.

14. Transportation Networks and Traffic Flows

According to the Environmental Assessment prepared by Mr. Fenner, Old U.S. Highway No. 10 will be the primary means of access to the site. Additional traffic generated by the subdivision should not warrant any changes. Access points to the existing highway will be well marked to alert approaching traffic.

The Montana Department of Highways has expressed the following opinion:

> "The proposed subdivision is a Planned Unit Development with a total of 330 dwelling units to be constructed. We estimate that these 330 units will generate between 1,650 and 2,310 trips per day.
>
> In Phase I and perhaps at completion, the only access to the PUD is an approach off of old US #10. This approach is 500' westerly of the intersection of old US #10 and US #10 which is the off ramp of the West Glendive I 94 Interchange and the main route to Glendive. Also, almost directly across from the proposed approach is the intersection of the Maco Sica Riders Road and US #10. Adding to the problem the intersection (old US #10 and US #10) is a sharp angle (approximately 30°) intersection and is located on a curve.
>
> Take this combination of factors; run an additional 2,000 vehicles a day through this intersection and it is likely that the excellent sufficiency rating for safety that US #10 has enjoyed in this area will decline.
>
> This intersection should be closely monitored and upgraded if warranted, preferably using right angle geometrics.
>
> Appropriate speed zones in the area of the two intersections should also be considered."

Based upon this response it is reasonable to assume that some upgrading of existing intersections will be necessary at a future date.

jg

Location Map